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ABSTRACT

Understanding students' learning styles is one of the first steps to providing an effective education. Four elements must be present in schools for mastery of content to occur. These four elements operate in sequence and each supports those that follow. The elements are (1) diagnosis of student traits and skills, (2) development of specific educational plans for students, (3) application of appropriate instructional strategies and methodologies, and (4) evaluation of student achievement, teacher performance, and program quality. Recent educational reform efforts have devoted considerable attention to the last three of these four steps but have tended to ignore diagnosis, the critical first step. Drawing on the learning style research of Rita Dunn, the National Association of Secondary School Principals' Learning Style Task Force developed, tested, and refined the Learning Style Profile, an easily administered, 23-scale instrument for assessing the stylistic skills and preferences of students in middle and high schools. The factors assessed include cognitive skills, perceptual responses, study preferences, and instructional preferences. (PGD)

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STRATEGIES FOR IMPROVING ACHIEVEMENT WITHIN DIVERSITY

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As educators, we are keenly aware of the ethnic and cultural differences among our students. Certainly in the United States, a nation founded in diversity and strengthened by immigration, we face daily the complexities of heterogeneity as well as the richness and advantages of a nation with many roots and branches. Our school system, in many ways, reflects these diversities.

A more subtle diversity, however, has been routinely ignored in schools. This diversity involves the variety of ways that individual students perceive and process information. Little attention has been paid in the past by educators to what has become known as student learning style. These more subtle and intrinsic differences among students may be equally as powerful as some of the more obvious and extrinsic differences found in ethnic diversity.

Education in the United States over the past three years has been dominated by the so-called "reform movement". While the many reports which constitute the reform movement each espouse their own view, a single theme dominates the entire lot. This theme is, in short, how can the rigor of schools be enhanced and the achievement of students be improved; in short, what conditions enhance the probability that students will master the material taught? This is, in sum and substance, America's current agenda for education.

BLUEPRINT FOR MASTERY

Four elements must be present in schools for mastery of content to occur. These four elements operate in sequence and are in support of one another. They include: (1) diagnosis of student traits and skills; (2) development of a prescription or specific plan for students; (3) the application of appropriate instructional strategies and methodologies; (4) the evaluation of student achievement, teacher performance, and program quality. These four elements comprise the heart of any effective school program. They must be considered each in some detail as they are currently practiced and as research would suggest they be practiced in the future.

Good teachers are, for the most part, good people. They are open, caring, conscientious, knowledgeable, curious, and interested in their students. But, quite unfortunately, a good person can be a poor teacher. What we need in schools are effective teachers, good persons who also understand and apply the necessary conditions for learning.

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Because of the widespread "effective schools" literature, we all can list by memory the elements of an effective school; for example, these schools hold and communicate high expectations, plan instruction carefully, manage classrooms to avoid student misbehavior, provide clear protocols for the classroom, make certain that useful feedback is provided to students, etc.

All of these procedures, however, must operate within an overall system of instruction. By system of instruction, I mean the formation of a plan for schooling that begins with the nature of the student and ends with an evaluation of student outcomes and of the school system itself.

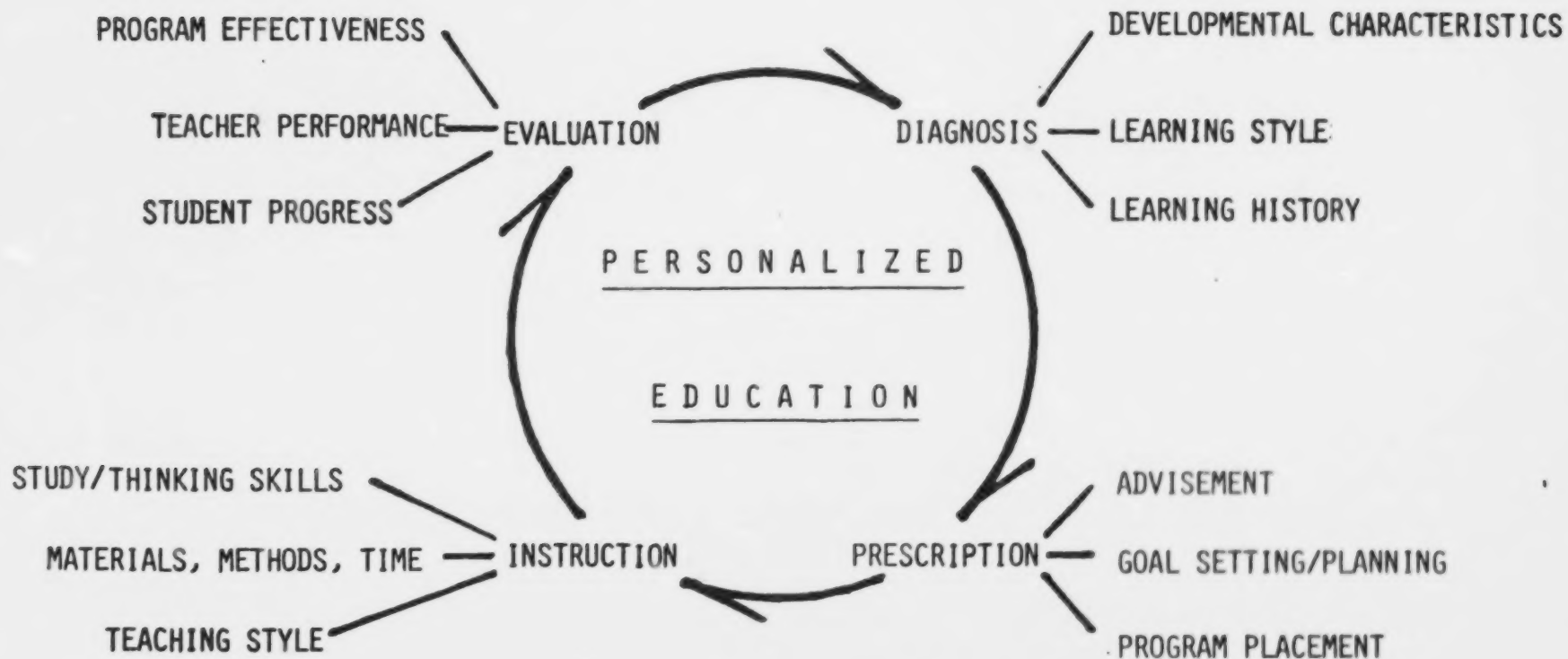
The four elements necessary for mastery of student learning to occur include:

1. Diagnosis of student traits and skills: Understanding the learner is the area most ignored by the current reform effort in the United States. Perhaps seeking better to understand the learner sounds coldly clinical, but a careful diagnosis of student learning proclivities is a necessary step to individualizing education. Simply providing options for students is not individualizing education; it is no more than simply providing choice. As the recent book, The Shopping Mall High School so clearly illustrates, students do not naturally select the education most beneficial to their nature or to their future. In part, they do not make the correct selection because they do not automatically understand themselves, their learning proclivities, or their options.

A proper diagnosis of students involves an analysis of important student traits to include developmental characteristics, learning history, and learning style. As educators we are reasonably aware of the developmental characteristics of students. We understand all about individual rates of maturation and stages of growth, and we understand that certain capacities, such as abstract thinking, emerge in Piagetian stages. We are also, particularly in American schools, thoroughly indoctrinated about student "readiness".

We are less knowledgeable about the learning history of students. By "learning history" we mean the knowledge and skills that a student possesses at any given point in his educational career. These competencies include such indices as vocabulary, quantitative skills, general knowledge, etc. A growing body of research shows that the learning history of a student determines the success of student achievement in a particular situation. For example, Professor Lorin Anderson of the University of South Carolina reports that more than one half of the achievement differences among students at any grade level can be attributed to differences already present when students enter that grade level. Furthermore, these differences grow with time and they are some ten times greater among eleventh grade students than among first grade students. Thus it turns out that immediate schooling may be less influential than prior learning on student achievement, especially in high school. Or, to say it another way, learning is sequential and current learning is dependent in large part upon prior learning.

MODEL OF PERSONALIZED EDUCATION



James W. Keefe
1985

One step to improving student achievement, therefore, is to gain a better snapshot of students as they enter school each year. We need to do a more thorough diagnosis of their existing history, and take a closer look at their current achievement tests as well as conduct an analysis of the content to be learned that year. We should also pay more attention to affective and attitudinal characteristics of students.

Student learning style is the least understood and most poorly applied lever we possess to improve student achievement. Learning styles are indicators of the ways that students process information. It is their proclivity for interacting with the learning environment. When we understand a student's learning style, we then know how a student learns best. From that point we gain an inside track on helping the student to achieve.

The NASSP, under the leadership of James Keefe, Director of Research, has been working over the past four years to develop a research base for practical instrument on student learning style. Building upon the work of Rita Dunn of St. John's University and Charles Letteri of the University of New Hampshire, a NASSP task force has identified twenty-three independent constructs that encompass the scope of learning style. These constructs appear under four headings: (1) cognitive; (2) perceptual response; (3) study preference; and (4) instructional preference. These elements will be described more completely in a later section of this paper. Let us now review briefly the other three major factors necessary for optimum student achievement.

2. Development of a prescription or specific plan for students:

Prescription is the second major element central to student achievement, and it involves the counseling of students, goal setting, planning the student program to meet goals, and the actual placement of students in class. In the heterogenous setting typically found in most American high schools, the counseling or advisement of students is absolutely critical to students success. Unfortunately, many counselors do not monitor carefully the progress of students and thus cannot provide timely advice on next steps. The second factor under the general heading of prescription is that of goal-setting. This should be an annual process for students and is highly motivational when conducted properly. Program placement considers the student goals and then establishes a plan for the year. Placement, of course, is that of scheduling courses and determining appropriate levels and activities.

3. Application of appropriate instructional strategies and methodologies:

The third main element of a personalized education program, one that takes into consideration the diversity of students, concerns the conduct of instruction. This instruction should be adaptive; that is to say it should vary according to the previous diagnosis of students and the careful prescription of program for students. The central question to be asked under the general area of instruction: What is the best possible learning environment for students based upon the careful analysis of the student and his most thoughtful prescription? The teacher is the key here, of course, because he must understand not only the content of the course but also the nature of the students and the strategies for instruction. The teacher must organize information and

use the appropriate materials and methodologies based upon an understanding of student styles and needs and according to the appropriate level of content. Feedback to students is also an essential factor in effective instruction.

4. Evaluation of student achievement, teacher performance, and program quality: The fourth area necessary for a personalized education program leading to mastery of content involves the evaluation of student progress, of teacher performance, and of the overall effectiveness of the total school program. It is not the purpose of this paper to argue the relative merits of criterion versus norm reference testing, but we do believe that the absolute gains made by students are the most important single factor in evaluation.

This brief visit to the four essential elements of effective instruction is made primarily to provide a perspective in the area of diagnosis. While the reform movement in the United States has devoted considerable attention to prescription, instruction and evaluation, it essentially has ignored diagnosis of the nature of student and student learning style. Without this diagnosis, we may yet develop the world's most efficient educational system, badly misdirected.

NASSP Learning Style Profile

"Every student has a personal learning style." These words are highlighted on the introductory page of the National Association of Secondary School Principals' new Learning Style Profile. They capture the spirit and purpose of this second-generation instrument for assessing the stylistic skills and preferences of middle level and senior high school students in grades 6 through 12.

In late 1982, the NASSP assembled a distinguished national task force to examine the concept of learning style. The Learning Style Task Force spent almost a year documenting the fragmented nature of the field and then set for itself the task of creating a single learning style instrument that would assess a broad spectrum of research-based style elements, be easily administered in the school setting, and be valid and reliable. Learning style elements were classified into cognitive, affective, and physiological/environmental domains. An information processing perspective was adopted as the basis for the Task Force conceptual model of style.

The instrument was developed in four phases from the fall of 1983 to early 1986. Three University Centers (Vermont, Ohio State, St. John's) developed and piloted 424 items in three domains. During the spring of 1984, separate cognitive, affective and environmental instruments were administered regionally and an initial exploratory factor analysis conducted. The Task Force carefully analyzed this data and prepared a first draft of the Learning Style Profile. Three forms consisting of 280 surviving items were given to more than 600 students and a second factor analysis performed. A second draft of the Profile was formulated that included 142 items and 27 style factors.

This second version of the instrument was administered to 1,500 students in 15 schools and again subjected to factor analysis. A few items were eliminated to shorten and strengthen the scales. One group of items was replaced by a more reliable set and a consistently shaky scale relegated to experimental status. A final draft of 126 items and 26 factors was administered to a national normative sample of 5,000 students in more than 40 schools throughout the nation. Additional studies examined test-retest reliability and the concurrent validity of the Profile against the Group Embedded Figures Test (Witkin: cognitive skill), the Edmonds Learning Style Identification Exercise (Reinert: perceptual responses), and the Dunn, Dunn, and Price Learning Style Inventory (affective and environmental elements).

The NASSP Learning Style Profile in its published form will contain 23 independent scales representing four higher order factors: cognitive skills, perceptual responses, study preferences, and instructional preferences. The scales and their meanings are the following:

1. Spatial Skill - To identify geometric shapes and rotate objects in the imagination
2. Analytic Skill - To identify simple figures hidden in a complex field
3. Sequential Processing Skill - To process information sequentially and verbally
4. Memory Skill - To retain distinct versus vague images in repeated tasks
5. Discrimination Skill - To visualize the important elements of a task
6. Categorizing Skill - To use reasonable versus vague criteria for classifying information
7. Verbal-Spatial Preference - For verbal versus nonverbal activities
8. Perceptual Response: Visual - Initial visual reaction to information
9. Perceptual Response: Auditory - Initial auditory reaction to information
10. Perceptual Response: Emotive - Initial emotional and/or physiological reaction to information
11. Persistence Orientation - Willingness to work at a task until completion
12. Mobility Preference - For moving about and taking breaks versus working until finished
13. Posture Preference - For informal versus formal study arrangements
14. Sound Preference - For quiet study areas versus background sound (radio, television)
15. Lighting Preference - For bright versus lower-lighted study areas
16. Study Time Preference: Afternoon - For studying in the afternoon
17. Study Time Preference: Early Morning - For studying in the early morning
18. Study Time Preference: Late Morning - For studying in the late morning
19. Study Time Preference: Evening - For studying in the evening
20. Verbal Risk Orientation - Willingness to express opinions, speak out, etc.

21. Manipulative Preference - For "hands on" activities
22. Grouping Preference - For whole class versus small group versus dyadic grouping
23. Temperature Preference - For studying in a cool versus a warm environment

A simultaneous processing scale that assesses skill in processing information visually and pictorially has been retained for additional experimental work (to collect more data) but student scores will not be reported on the Profile.

Internal consistency (alpha) and test-retest reliability (10-day) data show ranges from .37 to .82 with an average of about .61. Concurrent validity studies strongly support the conceptualization of LSP scales.

The Learning Style Profile will be available from NASSP in August. A sampler kit will include a copy of the instrument, an NCS answer sheet, profile sheets, and an examiner's manual. The St. John's University/NASSP Learning Styles Network will establish four or five technical assistance centers to assist schools in utilizing the instrument during the 1987-88 school year.

Schools, over the past generation, have rightfully attended to sociological divergencies in schools. We all understand and appreciate the distinct advantages to students of living and learning in a heterogeneous environment. Attention to these social or cultural diversities, however, is insufficient. Other dimensions of individual differences must also be considered. We believe that until the diagnostic phase of a comprehensive instructional program is included in the overall educational framework, and until proper attention is given to student learning styles within that diagnostic function, that schools will continue to fall far short of our potential for students and their diversity.